



GPS/Geo-caching Session Outline

For the Outdoor Skills Program

5th-6th Grade Lessons

- I. Welcome students and ask group what they remember or learned in the last session.

- II. Activity: GPS

- III. Discuss: Discussion – Can you think of some people who would use GPS, and what they would use it for? (Have students brainstorm) Here are some other ideas: Drivers using on-star, Emergency Personnel to find accidents, Vacationers to go geo-caching or to download sites they want to visit, farmers to mark a problem spot in their field, Real estate agents to mark property they are selling, conservationist to mark an endangered species home, hunters to mark a deer stand or duck blind, hikers to mark a trail, campers who find a great spot near a waterfall.

- IV. Activity: Geo-caching

- V. Wrap-up: Ask the students what they enjoyed most about today's session and what they enjoyed the least. (Highs & Lows)

The Outdoor Skills program is a partnership with Nebraska Games & Parks and the UNL Extension/4-H Youth Development Program to provide hands-on lessons for youth during their afterschool time and school days off. It provides the opportunity to master skills in the areas of hunting, fishing, and exploring the outdoors. This educational program is part of the 20 year plan to recruit, develop and retain hunters, anglers, and outdoor enthusiasts in Nebraska.

Inventory

Session: GPS/Geocaching Curriculum Level: 5-6

Kit Materials & Equipment

- Geo-cache box
- Notebooks (or scratch paper pads)
- Letter: Geocache site-please read
- Plastic bags
- Batteries

- Cache items: NGPC fishing bobbers, 4-H cards and/or Outdoor U cards, pencils

Supplies Instructor Provides

- GPS units (GPS Units can be checked out from District UNL Extension Offices or Nebraska Game and Parks Commission in Lincoln)

Materials to be Restocked-After Each Use

- Cache items: NGPC fishing bobbers, 4-H cards and/or Outdoor U cards, pencils

For information on restocking items contact Julia Plugge at 402-471-6009 or julia.plugge@nebraska.gov

All orders must be placed at least 2 weeks in advance.

Session: Navigation

Activity: GPS

Grade/Age Level:
5-6

Objectives: Participants will
1) navigate using a GPS Unit.
2) find a waypoint, and 3) mark a waypoint.

Method: Students use GPS units to triangulate their position and position of objects.

Materials:
GPS Units, Batteries.

Duration: 30-45 Minutes

Group Size: 2 participants

Setting: Outdoors

Key Terms: Global Positioning System, Triangulation

SET Ability: Use Tools

Background:

Have you seen lights traveling across the sky at night? You know it is not a plane or a falling star. The light is likely a satellite. The Department of Defense has 24 satellites, 11 thousand miles away for you to use so you don't get lost. GPS, which stands for Global Positioning System. Basically, this means that a satellite finds you, or your GPS unit, on the Earth. Your unit sends a message back that says "you found me!" To find you exactly, it talks to another satellite. Now a triangle has formed between you on the Earth, a satellite in space, and a second satellite. This is known as triangulation.

Activity:

Before the activity: Check batteries in GPS Units, and set one waypoint for all students to find on their unit such as a tree. Make sure all other waypoints have been deleted.

Procedure:

Divide students into groups, preferably two (2) students per GPS Unit.

Read the background information to the students.

Holding a GPS Unit – The best way to hold a Unit is to put the strap around your neck so if you have to climb your hands can become free quickly. Then hold the unit out in front of you facing up, just like you did with the compass.

Tip: Always turn your whole body when holding a GPS unit, not your hands.

The GPS Buttons – On your GPS unit, there are buttons. On the left side, find the UP button, DOWN button, and ENTER/MARK button. On the right side, find the PAGE button, and the POWER button. On the front of your GPS unit is a screen that gives you information about where you are or where you are going, just like your computer screen at home does. On the back of your unit is the battery compartment, and a data connector which you can hook up to a computer and download places you would like to visit on the Earth.

GPS Unit Screens – Hold down the POWER button to turn on your unit. The first screen you see will be the *Satellite Tracking* page. Once you and the satellites have found each other, this page tells you how accurate your location is such as "40 ft."

To get to the next screen push the PAGE button. You will use this button a lot today. Keep pressing the page button until you get to the *Menu* page. From this page you can navigate any of the tools you want to use.

We are going to go find a “waypoint”. This is a point that I have already marked for each of you. Using your arrow button, arrow down until the “waypoint” is highlighted. Then press the “enter” button. Arrow down and press the “enter” button. Our waypoint “001” is what we are trying to find. The picture above the waypoint gives you a hint of what you are trying to find, in this case it is a tree (or whatever you have chosen as an instructor).

Press “enter” once your waypoint is highlighted. A new screen pops up, and arrow down to “GOTO”. Press “enter”. Now you have a page that looks like a compass. It will show you which direction to go, and approximately how far away you are. Follow the screen until you have found the waypoint.

(Students should practice each step as you give the directions. Then have them switch and their partner repeats.)

Marking a waypoint – Take the students to another location. Now it is your turn to mark a waypoint for another person to find. Press the “page” button until you are back at the menu page. Using your up/down arrows move the highlight to *Mark*, and press “enter”.

Highlight the flag, and press “enter”. Here you can choose a symbol that is a hint what a person is looking for. Once you have the picture you would like, then press “enter”. Now name your waypoint, using “002”. You can use

letters or numbers, but for today we are going to make it easy on each other by using what pops up on the screen.

Now that you know how to mark a point, go find something to “mark” for someone else to find. (Set Boundaries: Time: 5-10 minutes, Area: On the school property, within eye shot of the instructor)

Next, all the students return and exchange GPS Units. Then they go to find the waypoint the other student has set for them.

Discussion – Can you think of some people who would use GPS, and what they would use it for? (Have students brainstorm) Here are some other ideas: Drivers using on-star, Emergency Personnel to find accidents, Vacationers to go geo-caching or to download sites they want to visit, farmers to mark a problem spot in their field, Real estate agents to mark property they are selling, conservationist to mark an endangered species home, hunters to mark a deer stand or duck blind, hikers to mark a trail, campers who find a great spot near a waterfall.

Extensions:

1. Go geo-caching
2. Hide objects and have the students go find them.
3. Use the Route menu, and enter coordinates of where they would like to vacation. Then find out who wants to go the shortest/farthest, etc...
4. Using the Tracks menu, have students attempt to write their names or make a shape on the screen.
5. The students can use the menu to track how fast they can run or move.

GEOCACHE SITE - PLEASE READ

Congratulations, you've found it! Intentionally or not!

What is this hidden container sitting here for? What the heck is this thing doing here with all these things in it?

It is part of a worldwide game dedicated to GPS (Global Positioning System) users, called Geocaching. The game basically involves a GPS user hiding "treasure" (this container and its contents), and publishing the exact coordinates so other GPS users can come on a "treasure hunt" to find it. The only rules are: if you take something from the cache, you must leave something for the cache, and you must write about your visit in the logbook. Hopefully, the person that hid this container found a good spot that is not easily found by uninterested parties. Sometimes, a good spot turns out to be a bad spot, though.

IF YOU FOUND THIS CONTAINER BY ACCIDENT:

Great! You are welcome to join us! We ask only that you:

- Please do not move or vandalize the container. The real treasure is just finding the container and sharing your thoughts with everyone else who finds it.
- If you wish, go ahead and take something. But please also leave something of your own for others to find, and write it in the logbook.
- If possible, let us know that you found it, by visiting the web site listed below.

Geocaching is open to everyone with a GPS and a sense of adventure. There are similar sites all over the world. The organization has its home on the Internet. Visit our website if you want to learn more, or have any comments:

<http://www.geocaching.com>

If this container needs to be removed for any reason, please let us know. We apologize, and will be happy to move it.